

ANSWER KEY

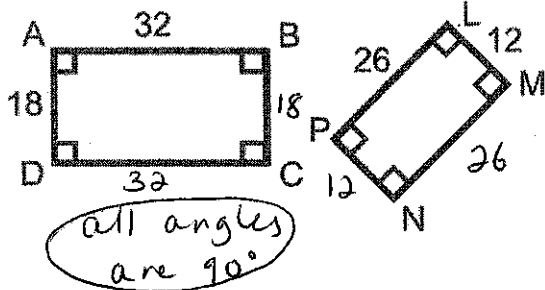
Name: _____

Date: _____

Per.: _____

4.3 Determining Similarity

①



all angles are 90°

opposite sides are \cong in a rectangle

Similarity Checklist:

1. Are all angles congruent? Yes!

2. Are sides proportional? Prove it by setting up proportions.

$$\frac{32}{26} \stackrel{?}{=} \frac{18}{12}$$

Method 1: Reduce each

$$\frac{32}{26} = \frac{16}{13}$$

$$\frac{18}{12} = \frac{3}{2}$$

$$\frac{16}{13} \neq \frac{3}{2}$$

Method 2: Cross-Multiply

$$\frac{32}{26} \times \frac{12}{18}$$

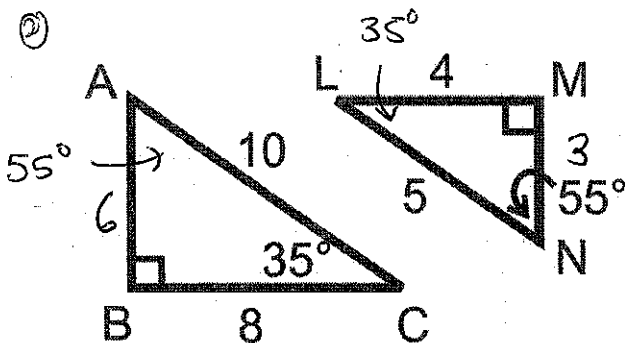
$$32 \cdot 12 \neq 26 \cdot 18$$

$$384 \neq 468$$

3. If they are similar, write a similarity statement AND the scale factor:

These quadrilaterals are NOT similar b/c the sides are NOT proportional.

②



(all angles in a Δ add up to 180°)

$$\overline{AB} \rightarrow 8^2 + b^2 = 10^2$$

$$\begin{array}{r} 64 + b^2 = 100 \\ -64 \quad -64 \\ \hline \end{array}$$

$$b^2 = 36$$

$$b = 6$$

$$\overline{MN} \rightarrow 4^2 + b^2 = 5^2$$

$$16 + b^2 = 25$$

$$b^2 = 9$$

$$b = 3$$

Similarity Checklist:

1. Are all angles congruent? Yes!

2. Are sides proportional? Prove it by setting up proportions.

$$\frac{6}{3} = \frac{8}{4} = \frac{10}{5}$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$\frac{2}{1} = \frac{2}{1} = \frac{2}{1}$$

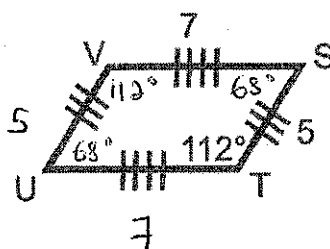
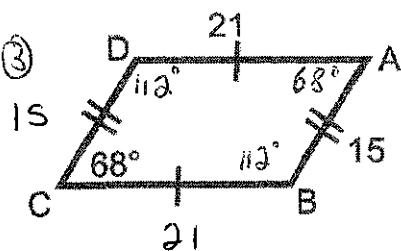
Yes! All sides are proportional.

3. If they are similar, write a similarity statement AND the scale factor:

$$\Delta ABC \sim \Delta NML$$

$$\text{Scale factor: } \frac{2}{1} \text{ or } \frac{1}{2}$$

③



Similarity Checklist:

1. Are all angles congruent? Yes!

2. Are sides proportional? Prove it by setting up proportions.

Method 1

$$\frac{21}{7} = \frac{15}{5}$$

$$\frac{21}{7} = \left(\frac{3}{1}\right)$$

$$\frac{15}{5} = \left(\frac{3}{1}\right) \checkmark$$

Method 2

$$\frac{21}{7} \times \frac{15}{5}$$

$$105 = 105 \checkmark$$

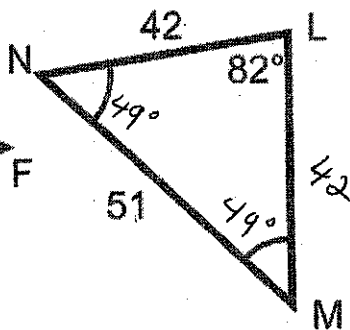
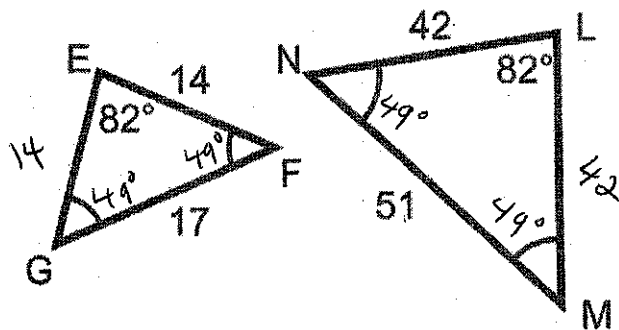
Sides are
proportional!

3. If they are similar, write a similarity statement AND the scale factor:

$$DACB \sim VSTU$$

$$\text{Scale factor: } \frac{3}{1} \text{ or } \frac{1}{3}$$

④



Similarity Checklist:

1. Are all angles congruent? Yes!

2. Are sides proportional? Prove it by setting up proportions.

Method 1

$$\frac{14}{42} = \frac{17}{51}$$

$$\frac{14}{42} = \left(\frac{1}{3}\right)$$

$$\frac{17}{51} = \left(\frac{1}{3}\right) \checkmark$$

Method 2

$$\frac{14}{42} = \frac{17}{51}$$

$$714 = 714 \checkmark$$

3. If they are similar, write a similarity statement AND the scale factor:

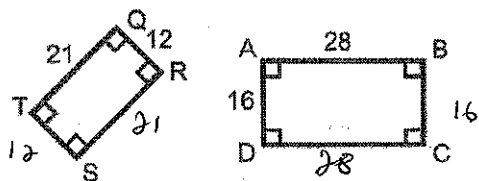
$$\triangle GEF \sim \triangle NLM$$

$$\text{Scale factor: } \frac{1}{3} \text{ or } \frac{3}{1}$$

4.3 Problem Set

Directions: Determine if the quadrilaterals are similar. If YES, include the scale factor and a similarity statement.

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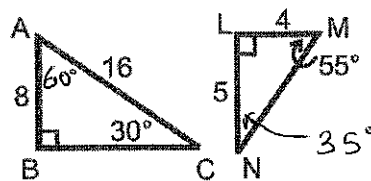


① All angles \cong ! ③ $QRST \sim BCDA$

② $\frac{12}{16} \stackrel{?}{=} \frac{21}{28}$
 $\downarrow \quad \downarrow$
 $\frac{3}{4} = \frac{3}{4} \checkmark$

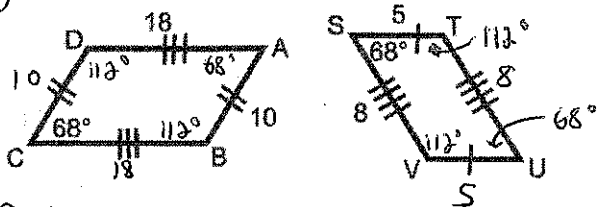
Scale Factor: $\frac{3}{4}$

6



Angles are NOT \cong so
the triangles are NOT
similar.

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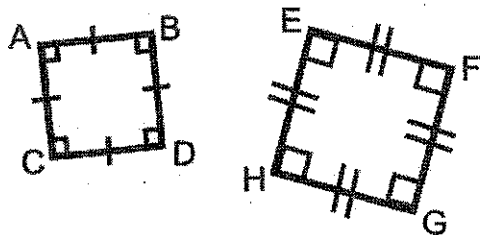


① Angles are \cong !

② $\frac{10}{5} \stackrel{?}{=} \frac{18}{8}$
 $\downarrow \quad \downarrow$
 $\frac{2}{1} \neq \frac{9}{4}$

The sides are NOT
proportional so the
quadrilaterals are
NOT similar.

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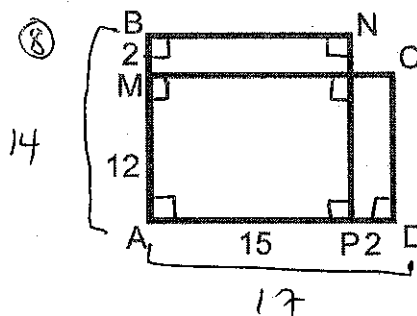


① Angles are congruent.

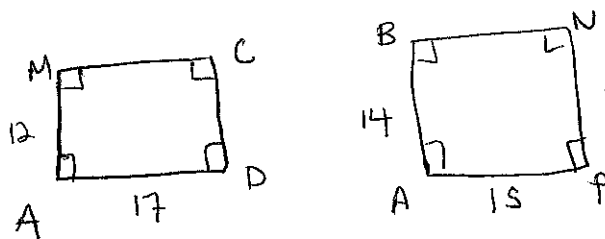
② Sides are proportional

Yes - similar
 $ABCD \sim EFGH$ (unknown
scale factor)

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① All angles are \cong !



② $\frac{12}{14} \stackrel{?}{=} \frac{17}{15}$
 $\downarrow \quad \downarrow$
 $\frac{6}{7} \neq \frac{17}{15}$

Sides are not
proportional!

NOT similar